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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,797	02/28/2002	Katsuhiro Iwasaki	02135C/HG	1786

1933 7590 11/17/2003

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NEW YORK, NY 10017-2023

EXAMINER

ANDREWS, MELVYN J

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/085,797

Applicant(s)

IWASAKI ET AL.

Examiner

Melvyn J. Andrews

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) 2-69 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 70-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

The elected claims are Claims 1 and new claims Claims 70 to 72.

This application contains claims 2 to 69 drawn to an invention nonelected with traverse in Paper No. 9. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over The patent to Kundrat et al discloses a method for smelting chromium with chromite having a chromium metallization of at least 10% and an iron metallization of at least 50% (col.8, lines 53 to 57)

*in the reduction furnace. Preferably, a pre-metallized, pre-heated chromite-carbon-slagging-agent mixture is charged into the reactor with the chromite having a chromium metallization of at least 10%, an iron metallization of at least 50% and at a temperature of at least 1000° C.*

but does not explicitly disclose an "average metallization degree of from 5 to 55% for metal oxide and /or metal hydroxide" but since Kundrat et al recognizes that the degree of metallization is a result-effective variable it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the degree of metallization, ; furthermore, Kundrat et al disclose that the chromite ore is pulverized and mixed with excess solid carbon and slagging agents , the mixture is agglomerated and the pellets are partially metallized (col.9, lines 39 to 51)

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During Stage 1 of the process of the invention, an iron bath at a temperature of at least 1500° C. is provided within a refining reactor. Chromite ore is pulverized and mixed with excess solid carbon and slagging agents. The mixture is agglomerated into pellets and the pellets are partially metallized in a rotary hearth furnace as described in U.S. Ser. No. 08/470311, filed Jun. 6, 1995, entitled "Method Of Reducing Metal Oxide In A Rotary Hearth Furnace Heated By An Oxidizing Flame", incorporated herein by reference. After being pre-reduced to at least 10% chromium and 50% iron metallization, the pellets are charged through the throat of the reactor while at an elevated temperature of at least 1000° C., preferably at least 1200° C. Oxygen gas is blown

the pellets are charged into a reactor containing an iron bath and oxygen is blown through a lance in order to post combust CO<sub>2</sub> and H<sub>2</sub> which is equivalent to step (B1).

### ***Response to Arguments***

Applicant's arguments filed September 2, 2003 have been fully considered but they are not persuasive.

Applicants argue that Kundrat et al is substantially different from the claimed invention because chromite ore is being reduced by the examiner does not agree because Kundrat et al does disclose an iron metallization of at least 50%.

With respect to determining the average metallization degree base on production rate, energy consumption and energy balance these parameters are considered by Kundrat et al as evidenced by Table III.

Kondrat et al discloses an iron metallization of at least 50% which is lower than the claimed upper limit of average metallization degree of 55%.

Claims 1, 70, 71 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over the publication WO 99/16911. The publication discloses a process of producing molten metals with a metalliferous feed material including partly reduced ores the degree of pre-reduction may range from relatively low levels (eg to FeO) to relatively high levels (eg 70 to 95% metallisation) which encompasses the claimed ranges (page 13, lines 4-7).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvyn J. Andrews whose telephone number is 703-308-3739. The examiner can normally be reached on 8:00A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

  
**MELVYN ANDREWS**  
**PRIMARY EXAMINER**

mja  
November 12, 2003